

The Examiner states that *Ravi* teaches a method for multimedia streaming as claimed in claim 1.

It is respectfully submitted that claim 1 includes the limitations of

1) defining in a client in a multimedia streaming network at least one parameter for determining a rate adaptation operating range, wherein the streaming network comprises a server configured for providing streaming data to the client, the client having a receiver buffer for storing at least part of the streaming data to compensate for a difference between data transmission amount by the server and usage amount of the streaming data by the client so as to allow the client to have sufficient amount of streaming data to play out in a non-disruptive manner, and wherein the rate adaption operating range is used for rate adaptation between the server and the client;

2) providing to the server information indicative of said at least one parameter;

3) adapting in the server the data amount to a reception rate at the client based on said at least one parameter, wherein said adapting in the server comprises adjusting **a sampling rate of the streaming data**; and

4) adjusting in the client packet transfer delay variation based on said adapting.

In rejecting claim 1, the Examiner points to column 6, lines 33-47; column 7, lines 16-25 and column 8, lines 26-45 to show that *Ravi* discloses adapting in the server the data amount to a reception rate at the client based on said at least one parameter, wherein said adapting in the server comprises adjusting a sampling rate of the streaming data.

Applicant respectfully disagrees.

At column 6, lines 32 to 47, *Ravi* discloses:

*The present invention is directed at the efficient and reliable streaming of data packets from stream server 220 to client computer 240, accomplished by optimally utilizing the bandwidth of the connection provided by computer network 290 while minimizing the loss of packets. In one embodiment, the transmission rate of the data stream is dynamically adjusted in response to changes in the bandwidth made available by computer network 290 for the network connection between server 220 and client computer 240.*

*Accordingly, server 220, in response to feedback from client computer 240, dynamically selects **transmission rates** in order to better match the varying bandwidth capacity of the network connection. For example, server 220 streams video packets at 1 frames/second (fps), 5 fps, 10 fps, and 15 fps for bandwidths of 4 kbits/second (kbps), 14 kbps, 18 kbps, and 44 kbps.*

In the above paragraph, *Ravi* only discloses that the **transmission rate** of the data stream is adjusted in response to the changes in the bandwidth made available of the computer network between the server and the client. For example, the streaming can be carried out at 1, 5, 10 and 15 fps for bandwidths of 4, 14, 18 and 14 kps. *Ravi* does not disclose or suggest that the server also adjusts the sampling rate of the streaming data.

At column 7, lines 16 to 25, *Ravi* discloses:

*FIGS. 5A, 5B, 5C, 5D and 5E, are detailed flowcharts illustrating steps 410, 420, 430, 440 and 450, respectively, of FIG. 4. In step 410, the performance variables are computed. Next, in step 420, the computed performance variables are used to determine if it is desirable to decrease the bandwidth, and if so, then in step 430, the bandwidth is decreased. If a bandwidth decrease is not desirable, then in step 440, the performance variables are used to determine if it is desirable to increase the bandwidth. If a bandwidth increase is desirable, then in step 450, the bandwidth is increased.*

In the above paragraph, *Ravi* discloses the client computer 240 computes the performance variable (step 410), including computing playtime and delta\_playtime (step 513); decreasing the bandwidth (step 430) and sending a reduce\_bandwidth message to the server (step 537); or increasing the bandwidth (step 450) and sending an increase\_bandwidth message to the server (step 522). According to *Ravi*, the term “bandwidth” is synonymous to the “transmission rate” (column 6, line 63 to column 7, line 5). This paragraph has nothing to do with the server.

At column 8, lines 26 to 45, *Ravi* discloses:

*FIG. 7A is a flowchart illustrating the computation of variables Playtime and Delta\_Playtime, step 513, in greater detail. In step 710, Playtime is set to the Duetime of the last packet in playout buffer 366. The computation of the Duetime is described in greater detail in step 740 below. Client computer 240 determines the change in the Playout\_Buffer\_Size (step 720). The Delta\_Playtime is set to the difference between the current Playtime and the Playtime at the previous invocation of the Adjust\_Bandwidth procedure (step 730). Variables Playtime and Delta Playtime provide exemplary absolute and relative measures, respectively, of the Playout\_Buffer\_Size, the number of data packet(s) in playout buffer 366.*

*FIG. 7B illustrate the determination of the Duetime of a data packet (step 710). First, the Base\_TS is set to the timestamp of the first packet received by client computer 240 (step 712). The Base\_Time is set to the time when the first packet was received (step 716). The TS is set the timestamp of the data packet of interest (step 746).*

In the above two paragraphs, *Ravi* only discloses how the client computers 240 computes the playtime and delta\_playtime (step 513, Figures 5A and 7a). These paragraphs have nothing to do with how the server responds to the changes in the bandwidth made available of the computer network between the server and the client.

On page 6 of the office action, first paragraph, the Examiner also states that *Ravi* teaches that the server, in response to the feedback from the client computer 240, dynamically selects transmission rates (streaming rates) in order to better match the varying bandwidth capacity of the network connection. Applicant respectfully agrees with the Examiner on this part. However, the Examiner fails to show that *Ravi* teaches adjusting the sampling rate.

It is respectfully submitted that sampling rate is known as encoding rate at the server and the transmission rate is the rate at which the data packets are transmitted from the server to the client. Generally, the sampling rate and the transmission rate are different. That is why the client always has a buffer for “receiver buffering” in order to compensate for the difference between the encoding rate and the transmission rate. In particular, the client stores incoming data before passing the data to the media decoder for playout (see p.1 of the specification).

While *Ravi* discloses that the transmission rate is adjusted, *Ravi* does not disclose or suggest that the sampling rate is adjusted at the server. Thus, *Ravi* fails to disclose limitation No.3 in claim 1.

For the above reasons, *Ravi* fails to anticipate independent claim 1.

For the same reasons, *Ravi* also fails to anticipate independent claims 11, 21, 26 and 32.

As for claims 2-7, 9, 10, 12-17, 19, 20, 22-25, 27-31 and 36, they are dependent from claims 1, 11, 21, 26 and 32 and recite features not recited in claims 1, 11, 21, 26 and 32. For reasons regarding claims 1, 11, 21, 26 and 32 above, *Ravi* also fails to anticipate claims 2-7, 9, 10, 12-17, 19, 20, 22-25, 27-31 and 36.

CONCLUSION

Claims 1-7, 9-17 and 19-34 and 36 are allowable. Early allowance of all pending claims is earnestly solicited.

Respectfully submitted,



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